

REPUBLIC OF YEMEN
TOWARDS A WATER STRATEGY
Water Conservation in Agriculture

A. Analysis

Traditionally, the predominant farming systems in Yemen were spate and spring irrigation, terrace agriculture, and rainfed farming in the plains. In the last twenty years, tubewell irrigation has become the most important contributor to agricultural output, and now occupies 34 percent of the cultivated area

Sources of Water in Farming

Source of Water	Hectares ('000s)	Percentage of Total Area
Spate	98	9
Spring	20	2
Tube well	363	34
Rained	571	55
Total Cultivated Area	1,052	100

There are four main problems in irrigation:

Tube well irrigation is living off capital

Water resources are depleting; it is unlikely that the decline can be reversed anywhere, as this would

require a massive voluntary abandonment of irrigated agriculture - but the rate of depletion could be

slowed. What happens when a resource depletes? First, - costs go up, ultimately to unacceptable levels.

Eventually the resource literally dries up. Some communities are already finding their existence in

jeopardy (see Box 3). So the challenge is, how can the rural economy adjust to a more sustainable

pattern of water use without massive disruption.

There are no incentives for water conservation

The policies and environment that have led to over use of water are described above.

,In effect

groundwater in Yemen is a classic example of the tragedy of the commons in which no individual user

has any incentive for conservation.

Water use is inefficient

Because the scarcity of water is not reflected in its financial cost, farmers often use water inefficiently.

There is scope for improving conveyance efficiency and on-farm water management.

Development is all top-down

There are virtually no programs or institutions that work from the bottom up. What is needed is a partnership approach.

B. Recommendations

In a varied and fragmented country like Yemen, the problems in each area are different, and this points to decentralization. This is reinforced by the weakness of Government: the virtual impossibility of regulation puts emphasis on the need for decentralization and community responsibility.

The need to preserve as much as possible of the rural economy whilst reducing water use highlights the need for efficiency improvements, maximizing returns to water .

If water markets develop, as seems inevitable, they have to be regulated to avoid depletion of the resources - and this could be done according to circumstances by either communities - or Government or better - by both.

Develop a coordinated approach to water conservation in agriculture MAWR, with NWRA, should hold an open forum to debate technical, institutional and aspects of water conservation in agriculture, and prepare a coherent approach. Note: preparations for this forum are underway.

Promote community involvement and self regulation

Decentralization and partnership are likely to be the best approaches, working from existing rights systems and management practices to promote change. The ongoing Decentralized Management Study (DMS) on rural water use shows that there is a basis for community involvement

and self-regulation and this could be reinforced by government and Para government in situations. The DMS should be expanded and should feed into pilot projects and full projects Government and donors should adopt a community-oriented bottom –up approach. This implies: a farming system and research action approach for research and extension; a responsive, community oriented approach to extension; and emphasis on community initiatives in natural resource management.

Emphasis should be on local and regional approaches and institutions, within the framework of the regional water management plans. Ideally, private not for profit organizations ("NGOs") would be involved .

Develop a public awareness program

To develop partnership and get key messages across, a public awareness program is essential, aimed at rural users, focussed on specific target populations and promoting just a few essential themes. NWRA is taking the lead in coordinating this program(see above), and all concerned national institutions Should support this (by joining the coordinating committee, working on message development, etc.). Donors should work together in supporting this vital effort through ongoing (e.g. LWCP) and future assistance.

Mitigate the negative impact of the adjustment process by promoting technical improvements

Government and donors should work to develop technical programs to increase the return per m³ of water. The programs should include research in advanced irrigation techniques, including economic and financial returns; and further promotion of advanced irrigation technology, with an initial subsidy to introduce it and to compensate for the distorted incentive structure. Research and extension on rainfed and livestock should be pursued vigorously. Government and donors should not push irrigated agriculture in threatened areas, and may need to change the nature of the existing or future programs towards range, rainfed or off farm employment. Government should introduce incentives for those activities - e.g., hill farming subsidies to maintain the terraces etc.

Improve the efficiency and sustainability of spate irrigation

Some spate schemes have been improved at Government expense. In order to ensure that these schemes are properly maintained and the water efficiently used, users should increasingly take responsibility for their operation and maintenance.

Compensate rural communities for reducing their water use

Government should set up the legal and institutional framework that will allow rural people to receive compensation for the rising opportunity cost of their water through water markets (see above).³

Even if set aside is not a viable option, there are means of creating incentives for economizing on water use through Government programs. Government and donors should introduce alternative income programs and a safety net for rural communities

Include qat in policy and programs by planning for it

Qat is the most important crop in Yemen and the country's greatest consumer of water. It cannot be ignored. MOPD and MAWR should include qat in statistics, and MAWR should make it the object of research and extension in order to exploit water saving potential. 4

considering opening up the qat trade....

One option that Government could consider would be to open qat to free trade; prices in neighboring

Ethiopia are much lower, and the import of qat, particularly at times requiring high irrigation such as

April/May, could significantly bring down prices in Yemen and reduce local production incentives. It

would also allow taxation at point of entry. As this involves major issues of public policy, the options

should be studied carefully before any action is taken

and changing attitudes to qat...

Government should develop a long-term education and public awareness campaign on qat, focussed like

successful anti-tobacco campaigns, on its pathology, on "lifestyle disamenities" like loss of vitality, loss

of family life, reduction of disposable income, and on the cost. Ideally, an NGO should take the lead. A

number of Government agencies should be involved, as well as other stakeholders.